TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, February 1941, at selected stations*

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Millibars	*Millibars*	*Millibars*		*Millibars*	
Barrow	1,021.7	+1.7	1,054	21	991	5
Dutch Harbor	988.7	−13.7	1,014	26	954	10
St. Paul	992.5	−11.6	1.019	25	953	11
Kodiak	1,000.9	−2.2	1.021	20	962	1
Juneau	1,010.8	−2.4	1.026	13	980	4
Tatoosh Island	1,011.5	−4.4	1,023	2	992	28
San Francisco	1,012.2	−7.1	1,024	1	990	11
Mazatlan	1,012.8	−0.7	1,015	7,15	1,009	8
Honolulu	1,016.6	−1.0	1,025	10	1,011	6
Midway Island	1,019.8	+4.2	1,032	8	1,009	2
Guam	1,013.2	+0.3	1,017	12	1,007	7
Manila	1,013.1	+0.9	1,021	2	1,009	28
Hong Kong	1,017.6	−0.4	1,031	1	1,011	20
Naha	1,020.0	+2.4	1,030	1	1,009	23
Titijima	1,018.4	+3.2	1,025	6	1,008	10
Petropavlosvk	998.1	−7.0	1,019	22	980	13

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observations.

Cyclones and gales.—Although pressures were unusually low in northern waters of the Pacific, thus indicating the frequent passage of deep disturbances, only a moderate degree of storminess was evidenced by ships' observations from all central and western waters along the northern routes. The few gales reported in February 1941 from high latitudes far from the coasts were practically confined to the region between longitudes 150° W., and 175° E., to the northward of latitude 40°. These gales, of forces 8–9, occurred on the 1st, 2d, and 11th to 13th.

South of this area the westbound Panamanian tanker *California Standard* met stormy weather on the 7th near 35° N., 166° W., and on the 13th to 14th near 35° N., from the 180th meridian westward to about 170° E. The heaviest gales, force 10, occurred on the 12th and 14th. Between 175° E., and 150° E., midway along the routes from Yokohama toward Midway Island, stormy weather occurred on the 9th to 11th, the 16th and 17th, and on the 20th and 21st. The gales were 8 to 9 in force, and were accompanied by only moderately depressed barometer.

In the extreme northeastern part of the China Sea fresh northeast monsoon gales were reported for the 8th and 11th.

The stormiest part of the ocean was a triangular region between the United States coast and a point at about the 150th meridian, northeast of the Hawaiian Islands. Of the numerous disturbances that affected some part of this area on all days of February except the 23d to 25th, several, particularly early, in the middle of, and very late in the month, caused gales of considerable severity, rising to force 10 locally on the 2d, 3d, 5th, 9th, and 11th, and to force 11 in squalls on the 26th. Off the Washington coast force-10 gales occurred on the 2d and 3d. Close to the Oregon coast fresh to whole gales were encountered by ships on the 5th, 8th, and 9th, and near the California coast, on the 5th, 10th, 11th, and 28th. As the disturbance of the 11th was moving inland, the southbound American S. S. *West Kyska* had a south-southeast gale of force 10 in the early morning, followed a few hours later, a little south of the Golden Gate, by a southwest wind of force 8 and barometer depressed to 988.8 millibars (29.20 inches). The lowest barometer at San Francisco that day was only two-hundredths of an inch higher. In the storm on the 28th, close to the coast, the American S. S. *Maliko*, near 37° N., 126° W., with a southeast gale of force 9, had a barometer as low as 981.7 millibars (28.99 inches).

Most of the storminess of the middle and late periods of the month in California-Hawaiian waters occurred within the general region 25° to 35° N., 135° to 150° W. Here there were mostly fresh gales on the 16th, 17th, 26th, and 27th. On the 26th, however, the U. S. S. *Porter* had squally weather near 28° N., 142° W., with the wind rising at times to force 11.

In the Gulf of Tehuantepec only one norther-type wind, that of the 5th, was reported to have attained a force as high as 7.

Fog.—The open ocean was singularly devoid of fog. In near coastal waters, it was reported on the 1st in Chosen Strait; on the 2d to 5th and the 9th and 10th off the southern coast of California; and on the 11th near the tip of Lower California.

RIVER STAGES AND FLOODS

By BENNETT SWENSON

Precipitation amounts were abnormally high from Oklahoma and Texas westward to the Pacific Ocean, including most of the Great Basin, and river stages were high in most of this area with light to moderate flooding occurring at a few points, notably in Texas, Oklahoma, and California. The outstanding feature was the heavy rainfall in California, especially the southern part of the State. Los Angeles reported a monthly total of 12.42 inches, which was the second greatest February total of record and the fourth greatest for any month in 64 years. The winter total at Los Angeles for this year was 20.13 inches, exceeded only in the winter of 1889–90 with a 3-month fall of 24.99 inches. The winter total for the entire State was 22.59 inches, the wettest winter in 25 years.

In the remainder of the country, precipitation was well below normal, except in Florida where it was above normal. In the East-Central States the precipitation was decidedly deficient and river stages were unusually low. Indiana and Tennessee had the driest February of record; Kentucky and Ohio, the driest since 1895; other States such as Pennsylvania, West Virginia, Virginia, and Missouri had the driest in 20 to 40 years. In contrast to California, the precipitation in Oregon was below normal and Washington had the driest February since 1920.

North Atlantic drainage.—Unusually heavy rains occurred on February 7 in the Northeast Coastal States, the heaviest amounts being confined to extreme southeastern New York and western Connecticut. Amounts recorded at regular Weather Bureau stations for the 24 hours ending at 7:30 a. m. of the 8th were 3.07 inches at New York City and 1.90 inches at Hartford, Conn. Greater amounts undoubtedly fell in this area but such records are not available at this time. Severe local flooding resulted from this rain in the smaller streams of western Connecticut.

The average snow depth over the Connecticut River Basin as of March 15–16 was 15.1 inches with an average water content of 4.14 inches.

Precipitation was frequent but rather light in amount in the Susquehanna River Basin, the average being below normal for the month. At the end of the month the snow depth in the basin above Towanda, Pa., averaged 5.2 inches with a water content of 1.25 inches. In the basin below Towanda the average snow depth as measured on March 4 was two inches. High temperatures with rain over most of the watershed on March 3 reduced the snow

mantle considerably and resulted in a small increase to stream flow.

East Gulf of Mexico drainage.—Several rises occurred in the Pearl River during the month but flood stage was exceeded only once when the stage at Jackson, Miss., reached 18.1 feet on February 8.

Upper Mississippi Basin.—Stages in the Rock River were slightly above flood stage at Moline, Ill., from February 15 to 17.

Red River Basin.—Minor floods occurred in the Sulphur River during the first week of the month and again in the last week. The crest stages in the first rise were 24.5 feet at Ringo Crossing, Tex., on the 3d and 24.9 feet at Naples, Tex., on the 7th. In the second rise the crest at Ringo Crossing was 22.5 feet on the 27th, but the crest had not reached Naples at the close of the month. The total losses have been estimated at about $3,200.

West Gulf of Mexico drainage.—The streams in eastern Texas remained at moderately high stages during the month as the result of abundant rainfall. Minor flooding occurred in the Trinity and Guadalupe Rivers, but resulted in no damage of consequence.

Colorado River Basin.—The Salt River, which has been dry for several years, rose to a stage of 4.5 feet on February 22 and 5.2 feet on March 3 at Phoenix, Ariz. Advisory warnings were issued for these rises as it was necessary for several families who were living in the river bottoms to evacuate.

Pacific Slope drainage.—Heavy rains in California resulted in high stages and some overflowing of lowlands in the Central Valley of California. Accumulating run-off into the Tulare Lake Basin broke the levees of one reclaimed district and about 5,000 acres was flooded.

In the Sacramento River proper moderate flooding took place on February 11–13 and another flood began on the 28th. Like the two preceding months frequent rains during February intensified the flood situation. On February 10 a general rainstorm with exceptionally heavy rainfall amounts fell at intermediate elevations over all tributaries of the Sacramento River. The run-off was excessive from all of the lateral streams in Tehama, Glenn, and Butte Counties, while the flow above Redding was proportionately light. The peak stages in the American and the extreme upper Sacramento River approximated those of December 1940, while in the Feather-Yuba and in the Sacramento from Red Bluff to Knights Landing, the flow was considerably greater than had previously occurred this season.

Flood or danger stages were exceeded by 1 to 2 feet at points from Red Bluff to Knights Landing. At the latter point the 32.2-foot crest has been exceeded only twice in the history of the station. The water in the Yolo Bypass was unusually high but little additional damage resulted there because the island tracts have remained flooded since December 1940.

Toward the latter part of the month the lower San Joaquin began to rise moderately, and water flowing through unrepaired levee breaks of last year flooded limited areas of lowlands on the east side of the river north of the junction with the Stanislaus River.

The total losses from high water in the Sacramento Valley during February have been estimated at $463,000.

A moderate flood occurred in the Eel River from the 10th to 11th with a crest stage of 19.25 feet at Fernbridge, Calif., on February 11. The greatest losses inflicted were those sustained by railroads and highways. A partial list of these damages indicated a loss of $50,000.

FLOOD-STAGE REPORT FOR FEBRUARY 1941

[All dates in February]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
EAST GULF OF MEXICO DRAINAGE					
	Feet			*Feet*	
Pearl: Jackson, Miss.	18	7	8	18.1	8
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Rock: Moline, Ill.	10	15	17	10.3	16
Red Basin					
Sulphur:					
Ringo Crossing, Tex.	20	2	5	24.5	3
		25	(1)	22.5	27
Naples, Tex.	22	5	11	24.9	7
WEST GULF OF MEXICO DRAINAGE					
Trinity:					
Dallas, Tex.	28	2	4	31.3	3
		24	25	31.6	25
		28	28	28.05	28
Trinidad, Tex.	28	5	8	29.5	7
		25	(1)		
Long Lake, Tex.	40	9	9	40.1	9
Liberty, Tex.	24	27	(1)		
Guadalupe:					
Gonzales, Tex.	20	3	3	22.9	3
Victoria, Tex.	21	4	6	23.6	6
PACIFIC SLOPE DRAINAGE					
Sacramento Basin					
Sacramento:					
Red Bluff, Calif.	23	10	11	24.7	10
		28	(1)		
Hamilton City, Calif.	20	11	11	20.65	11
Knights Landing, Calif.	30	11	17	32.2	13
Eel Basin					
Eel: Fernbridge, Calif.	17.5	11	11	19.25	11

[1] Continued into following month.

TABLE OF FLOOD LOSSES AND SAVINGS, FEBRUARY 1941

River and drainage	Tangible property	Matured crops	Prospective crops	Livestock and other movable farm property	Suspension of business	Total loss	Total savings
MISSISSIPPI SYSTEM							
Red Basin							
Sulphur	$100			$75	$3,000	$3,175	$350
Guadalupe River							800
PACIFIC SLOPE							
Sacramento River	121,500	10,000	280,000	1,000	50,500	463,000	[1] 100,000
Eel River	[1] 50,000						2,500

[1] Incomplete.